

WHAT IS CLAIMED IS:

1 1. A system for power line networking, the system comprising:
2 an external data source, the data source being derived from a world wide
3 networks of computers;
4 a router coupled to the external data source and coupled to a first datasource
5 connection;
6 a powerline network apparatus, the apparatus comprising:
7 a second datasource connection, the datasource connection coupled to
8 the first data source connection;
9 a powerline device coupled to the second datasource connection, the
10 powerline device being adapted to receive and transmit information in a first format from the
11 second datasource connection and adapted to receive and transmit information in a second
12 format;
13 a virtual local area network device including a first input/output port
14 and a plurality of second input/output ports, each of the second input/output ports numbered
15 from 1 through N, where N is an integer greater than 1;
16 a plurality of modem devices coupled to the virtual local area network
17 device, the plurality of modem devices numbered from 1 through N, each of the plurality of
18 modem devices being coupled respectively to one of the plurality of second input/output
19 ports, each of the plurality of modem devices also being coupled to one of a plurality of
20 power lines numbered from 1 through N, each of the power lines being capable of
21 communicating information to and from the second data source connection.

1 2. The system of claim 1 wherein each of the input/output ports
2 corresponds respectively to each of a plurality of users numbered from 1 through N.

1 3. The system of claim 1 wherein the powerline comprises a power grid
2 formed within at least a building structure.

1 4. The system of claim 1 wherein the datasource is formatted using an
2 OFDM format.

1 5. The system of claim 1 wherein the first format is OFDM and the
2 second format is MII.

- 1 6. The system of claim 1 wherein the second format is a serial format.
- 1 7. The system of claim 1 wherein the powerline device is a powerline
2 modem.
- 1 8. The system of claim 1 wherein each of the powerlines is maintained at
2 a preselected voltage and preselected frequency.
- 1 9. The system of claim 8 wherein the preselected voltage ranges from
2 about 100 to 120 volts and preselected frequency ranges from 50 through 60 Hz.
- 1 10. The system of claim 8 wherein the preselected voltage ranges from 85
2 to 265 volts and preselected frequency ranges from 50 through 60 Hz.
- 1 11. The system of claim 1 wherein each of the powerlines is a coaxial
2 cable.
- 1 12. A method for converting a plurality of power lines in at least a building
2 structure into a communication network for a plurality of users, the method comprising:
3 coupling an apparatus for communicating between a data source and at least
4 one of a plurality of users through a power line network, the apparatus comprising:
5 a datasource connection, the datasource connection coupled to a data
6 source;
7 a powerline device coupled to the datasource, the powerline device
8 being adapted to receive and transmit information in a first format from the datasource and
9 adapted to receive and transmit information in a second format;
10 a virtual local area network device including a first input/output port
11 and a plurality of second input/output ports, each of the second input/output ports numbered
12 from 1 through N, where N is an integer greater than 1;
13 a plurality of modem devices coupled to the virtual local area network
14 device, the plurality of modem devices numbered from 1 through N, each of the plurality of
15 modem devices being coupled respectively to one of the plurality of second input/output
16 ports, each of the plurality of modem devices also being coupled to one of a plurality of
17 power lines numbered from 1 through N, each of the power lines being capable of
18 communicating information to and from the data source;

19 allowing at least one of the users to communicate to the data source through
20 one of the plurality of power lines; and
21 denying access to at least one of the users from communicating to the data
22 source through one of the plurality of power lines.

1 13. The method of claim 12 wherein the building structure is an office
2 building.

1 14. The method of claim 12 wherein the building structure is a residential
2 home.

1 15. The method of claim 12 wherein the building structure is a multi-
2 tenant building.

1 16. The method of claim 12 wherein the allowing at least one of the users
2 comprises receiving a user code from an unauthorized user coupled to the power line
3 network; processing the user code; and allowing access to the unauthorized user, the
4 unauthorized user that is allowed to use the powerline network being an authorized user.

1 17. The method of claim 12 the denying access of at least one of the users
2 comprises receiving a user code from an unauthorized user coupled to the power line
3 network; processing the user code; and denying access to the unauthorized user, the
4 unauthorized user that is denied to use the powerline network being maintained as the
5 unauthorized user.

1 18. Apparatus for powerline virtual local area networking, the apparatus
2 comprising:
3 a datasource connection, the datasource connection coupled to a data source;
4 a powerline device coupled to the datasource, the powerline device being
5 adapted to receive and transmit information in a first format from the datasource and adapted
6 to receive and transmit information in a second format;
7 a virtual local area network device including a first input/output port and a
8 plurality of second input/output ports, each of the second input/output ports numbered from 1
9 through N, where N is an integer greater than 1;
10 a plurality of modem devices coupled to the virtual local area network device,
11 the plurality of modem devices numbered from 1 through N, each of the plurality of modem

12 devices being coupled respectively to one of the plurality of second input/output ports, each
13 of the plurality of modem devices also being coupled to one of a plurality of power lines
14 numbered from 1 through N, each of the power lines being capable of communicating
15 information to and from the data source.

1 19. Apparatus of claim 18 wherein the data source is a modem, the modem
2 coupled to a communication network.

1 20. Apparatus of claim 18 further comprising a repeater coupled to at least
2 one of the powerlines, the repeater being adapted to amplify a signal associated with the
3 information from the datasource.

1 21. Apparatus of claim 18 wherein the datasource connection is a power
2 line connection and an Ethernet connection.

1 22. Apparatus of claim 18 wherein the datasource connection is a two wire
2 connection.

1 23. Apparatus of claim 18 wherein each of the input/output ports
2 corresponds respectively to each of a plurality of users numbered from 1 through N.

1 24. Apparatus of claim 18 wherein the powerline comprises a power grid
2 formed within at least a building structure.

1 25. Apparatus of claim 18 wherein the datasource is formatted using an
2 OFDM format.

1 26. Apparatus of claim 18 wherein the first format is OFDM and the
2 second format is MII.

1 27. Apparatus of claim 18 wherein the second format is a serial format.

1 28. Apparatus of claim 18 wherein the powerline device is a powerline
2 modem.

1 29. Apparatus of claim 18 wherein each of the powerlines is maintained at
2 a preselected voltage and preselected frequency.

1 30. Apparatus of claim 29 wherein the preselected voltage ranges from
2 about 100 to 120 volts and preselected frequency ranges from 50 through 60 Hz.

1 31. Apparatus of claim 29 wherein the preselected voltage ranges from 85
2 to 265 volts and preselected frequency ranges from 50 through 60 Hz.

1 32. Apparatus of claim 18 wherein each of the powerlines is a coaxial
2 cable.

1 33. Apparatus for powerline communications comprising:
2 a face plate structure including a first side and a second side, the first side
3 including an outlet for data communications and a power outlet for AC power;
4 a housing coupled to the backside of the face plate structure;
5 a DC power supply coupled to and within the housing;
6 a network device including a first port and a second port, the network device
7 being coupled to and within the housing, the network device being coupled to the DC power
8 supply;
9 a powerline device including a first powerline port and a second powerline
10 port, the powerline device being coupled to and within the housing, the powerline device
11 being coupled to the DC power supply, the first powerline port being coupled to the second
12 port of the network device;
13 a coupler coupled to the second powerline port and coupled to the outlet for
14 data communications, the coupler being coupled to and within the housing; and
15 an AC connector coupled to the housing and coupled to the DC power supply,
16 the AC connector being coupled to the first port of the network device.

1 34. Apparatus of claim 33 wherein the face plate structure and housing
2 have a thickness of less than four inches and a width of less than three inches and a height of
3 less than five inches.

1 35. Apparatus of claim 33 wherein the second port couples to an MII bus,
2 the MII bus interfaces between the second port and the first powerline port.

1 36. Apparatus of claim 33 wherein the housing is made of a plastic
2 material.

1 37. Apparatus of claim 33 wherein the housing is removable.

1 38. Apparatus of claim 33 further comprising an analog front end module
2 coupled to the coupler, the analog front end module being disposed between the coupler and
3 the powerline device.

1 39. Apparatus of claim 33 wherein the outlet is a CAT 5 connector device.

1 40. Apparatus for powerline communications comprising:
2 a removable network jack structure including an outlet for data
3 communications;

4 a housing coupled to the network jack structure;

5 a DC power supply coupled to and within the housing;

6 a network device including a first port and a second port, the network device
7 being coupled to and within the housing, the network device being coupled to the DC power
8 supply;

9 a powerline device including a first powerline port and a second powerline
10 port, the powerline device being coupled to and within the housing, the powerline device
11 being coupled to the DC power supply, the first powerline port being coupled to the second
12 port of the network device;

13 a coupler coupled to the second powerline port and coupled to the outlet for
14 data communications, the coupler being coupled to and within the housing; and

15 an AC connector coupled to the housing and coupled to the DC power supply,
16 the AC connector being coupled to the first port of the network device.

1 41. The apparatus of claim 40 wherein the AC connector is operably
2 coupled to the housing through a pivoting device, the AC connector being adapted to
3 protrude from the housing to be insertable into an AC wall outlet in a first position and the
4 AC connector being adapted to fold toward the housing about the pivoting device in a second
5 position.

1 42. Apparatus of claim 40 wherein the AC connector is maintained within
2 a region of the housing in the second position.